scheduling decision was made. This additional information can be used by serving eNB **2***a* to prioritize received initial scheduling decisions in case several UEs **8** happen to request the same UL resources. The additional information can also include alternative preferred resource allocation options or channel state information in case serving eNB **2***a* cannot allocate the most preferred resources (as defined by the initial scheduling decision).

[0061] Serving eNB **2***a* can also derive additional information from the initial scheduling decision. For example, serving eNB **2***a* can derive information about the amount of buffered data at UE **8***a* from the modulation and coding scheme and/or transport block size decided by UE **8** and indicated in the TRR message.

[0062] UE **8***a* transmits the TRR message to the serving eNB **2***a* (STEP **404**). This transmission can be made via UL resources dedicated to UE **8***a*, or via resources that are not dedicated to UE **8***a* but are contention based resources commonly available to a plurality of UEs **8** served by the serving cell **4***a*. The TRR message could be multiplexed with UL data, whereby a data transmission for a transport block is accompanied by an indication of the initial scheduling decision for the next or some further transport block. A pre-defined format can be defined for the TRR message.

[0063] Serving eNB **2***a* detects the TRR message (STEP **406**). This may or may not involve blind decoding depending on the modulation method used for transmitting the TRR message. The TRR message may be transmitted via dedicated resources or via contention based common resources.

[0064] Serving eNB **2***a* makes the final scheduling decision (STEP **408**) based on the initial scheduling decision indicated in the TRR message. Serving eNB **2***a* includes a Multi-User Scheduler that functions to coordinate UL transmissions from the plurality of UEs **8** in the serving cell, so as to avoid excessive interference at the receiving antennas for the serving cell **4***a*. The Multi-User Scheduler of Serving eNB **2***a* determines whether the initial scheduling decision indicated in the TRR message from UE **8***a* is compatible with initial scheduling decisions made by other UEs **8***b* in the serving cell **4***a*, and also with other scheduling decisions made by Serving eNB **2***a*. In a simple embodiment, serving eNB **2***a* either (i) accepts the initial scheduling decision and allocates UL resources to UE **8***a* in accordance with the initial scheduling decision, or (ii) allocates no UL resources to UE **8***a* in response to the scheduling request, if the initial scheduling decision does not meet predetermined conditions for compatibility with TRR messages from other UEs **8***b* and also other scheduling decisions made by Serving eNB **2***a*. In a more sophisticated embodiment, serving eNB **2***a* either (a) confirms the initial scheduling decision or (b) decides on changes to one or more of the transmission parameters about which UE **8***a* made the initial scheduling decision. This final scheduling decision takes care of sharing the UL resource among multiple UEs **8**.

[0065] Serving eNB **2***a* transmits a scheduling grant message indicating the final scheduling decision to UE **8***a* (STEP **410**).

[0066] There are different ways to design the scheduling grant message. For example, it is possible to use an existing format that is specified as standard for existing techniques that do not involve the transmission of initial scheduling grant decisions, or to use a different format. For example, a scheduling grant message of reduced size can be achieved by only indicating in the scheduling grant message how the final scheduling decision made by serving eNB **2***a* differs to the initial scheduling decision made by UE **8***a*. On the other hand, the use of an existing standard format has the advantage of reduced system complexity.

[0067] In the very simple embodiment mentioned above, serving eNB **2***a* can use simple ACK/NACK signaling to communication the result of its final decision whether to make a scheduling grant in accordance with the initial scheduling decision, or not to make any scheduling grant.

[0068] In the more sophisticated embodiment mentioned above, efficient communication of the difference between the initial scheduling decision and the final scheduling decision can be achieved using index numbers that are mapped in a predetermined look-up table prestored at both UE **8***a* and serving eNB **2***a* to respective ones of possible differences between an initial scheduling decision and a final scheduling decision.

[0069] The final scheduling grant can be sent via a physical downlink control channel (e.g. PDCCH). The downlink control channel transmission can, for example, be a multi-antenna precoded transmission which is demodulated at UE **8***a* based on non-precoded reference signals and an explicit indication of the precoding vector/matrix for the transmission; or an enhanced transmission mode according to which reference signals are subjected to the same precoding as the symbols generated from the bit stream containing the final scheduling grant information.

[0070] UE **8***a* detects the final scheduling grant (STEP **412**); and makes an UL data transmission in accordance with the final scheduling grant (STEP **414**).

[0071] One possible extension to the technique described above is for UE **8***a* to determine which cell has the best radio conditions for UE **8***a*, and to transmit the TRR message to that cell (which may or may not be the serving cell). As mentioned below, the above-described technique can also be used for transmissions between two UEs, including D2D transmissions as part of multi-hop uplink transmissions from a UE towards the access network. A UE could take radio conditions into account when determining which one of a plurality of neighbouring UEs to use for one hop of a multi-hop transmission towards the access network, and then transmit the TRR message to the selected neighbouring UE.

[0072] In the above-described technique, the use of measurements of downlink transmissions and interference information transmitted by other UEs **8***b* for the initial scheduling decision enables improved utilization of channel reciprocity in the TDD system and support for distributed inter-cell interference control (ICIC) functionality.

[0073] In the above-described technique, making the initial scheduling decision at UE **8***a* can enable more accurate UL resource allocation, because the scheduling decision can be made closer in time to the UL data transmission for which the scheduling decision is made. For example, the scheduling decision can be made on information about e.g. UE buffer status and pathloss, that can be more real time than could be possible in a system in which a significant amount of delay occurs between preparing such information at UE and making a scheduling decision at the access network based on such information.

[0074] In the above-described technique, making the initial scheduling decision at UE **8***a* can reduce uplink signalling overhead by reducing the need for UE to transmit separate sounding reference signals and power headroom reports to eNB.